

What is claimed is:

1. A system for traversing and rendering a graphic primitive, comprising:
a setup engine that outputs representative values of a graphic primitive;
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a raster engine that receives the representative values of the graphic
primitive and forms therefrom representative pixels, the raster engine having at
least a scan module that scans only pixels within the graphic primitive and assigns
data values to each of the pixels and a look-ahead module that identifies pixels
10 that are inside of the primitive.
2. The system according to claim 1, wherein the scan module is structured to
perform block mode scanning.
- 15 3. The system according to claim 1, wherein the graphic primitive is a triangle, and
wherein the representative values are at least one edge function of the triangle and
slope values for at least one vertex of the triangle.
4. The system according to claim 1, wherein the graphic primitive is a triangle, and
20 wherein the representative values are at least one edge function of a longest side
of the triangle and slope values for at least one vertex of the triangle.
5. The system according to claim 4, wherein the scan module is structured to check a
next adjacent pixel while processing a current pixel to determined if the next
25 adjacent pixel is inside the triangle.
6. The system according to claim 1, wherein the scan module comprises:
first and second registers for storing the x and y slope data, respectively
for a predetermined current pixel in the triangle,
30 a first multiplexer having inputs connected to outputs of the first and
second registers, and having an output;

an adder having first and second inputs and having an output, the first input of the adder being connected to the output of the first multiplexer;

a third register for receiving a characteristic value for the predetermined pixel, the third register having an input and an output;

5 a second multiplexer having first and second inputs and an output, the first input of the second multiplexer connected to the output of the third register, and the output of the second multiplexer connected to the second input of the adder;

10 a third multiplexer having first and second inputs and an output, the first input of the third multiplexer connected to setup engine data and the second input connected to the output of the adder, and the output of the third multiplexer connected to the input of the third register;

a fourth multiplexer having first and second inputs and an output, the first input connected to the output of the third register;

15 a fourth register having an input connected to the output of the fourth multiplexer, and having an output connected to the second input of the second multiplexer, the output of the fourth register also connected to the second input of the fourth multiplexer.

20 7. The system according to claim 6, wherein the third register stores a data value for the current pixel, and wherein the fourth register stores a data value for a next pixel that is inside the triangle.

8. The system according to claim 6, wherein the data value is one of a color value and a texture value.

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13. A graphics system, comprising:

at least one graphic triangular primitive;

5 a first module that generates edge functions for the primitive and that provides indication of which of the edge functions corresponds to a longest side of the triangular primitive, and that provides starting coordinates for the triangular primitive;

a second module that forms pixels using the edge functions of the primitive and that provides at least one data value for each pixel;

10 a third module that, from a current pixel, determines if a next pixel is
within the triangular primitive, the third module only storing a data value of the
next pixel when the next pixel is inside of the triangular primitive.

14. The system according to claim 13, wherein a data value is assigned to a current pixel within the triangular primitive, and a data value is saved for a next pixel within the triangular primitive only when the next primitive is within the triangular primitive.

15. The system according to claim 13, wherein data values are assigned only to pixels within the triangular primitive and never to pixels outside of the triangular primitive.

16. The system according to claim 13, wherein the second module forms a plurality of data values for each pixel.